

Research Article

Innovation and Development of Cultural and Creative Industries Based on Big Data for Industry 5.0

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While art design is based on innovation and creativity, information technology is advancing by leaps and bounds for Industry 5.0. Big data technology has achieved breakthrough development, and the big data era that has followed has begun. Promoting the resources, technology, thinking big data is the general trend. It is an important expression of creative thinking, which is closely connected with art design and studies the relationship between design and art. As the starting point for research, the average growth rate of China's cultural and creative industries is as high as 26.08%, which is not only limited by the growth rate of traditional industries. More results show that, in 18 years, radio, television, and Internet information services, which are rapidly developing, accounted for 27.9%, 21.8%, and 20.3%, while the advertising, exhibition, tourism, and leisure industries have also steadily increased, and they accounted for 9.6% and 7.1% of the total share. These research results show that the design art and cultural and creative industries are complementary.

1. Introduction

With the promotion of smart terminals, the concept of the cultural creative industry was first proposed by the British in its cultural industry development document. Refer to those who rely on personal creativity, skills, and talented wisdom, creation and promotion of cultural resources were referred to, thereby creating potential wealth and employment opportunity industry. Its core content is culture and creativity, and it is an emerging industry developed in the context of global economic integration, as well as a new industry development direction. Innovation in upgrading and model development is of great significance. As the name implies, cultural creativity is the combination of “culture” and “creativity,” emphasizing the core of culture and creative ideas and focusing on human knowledge, inspiration, and imagination. Science and technology, industrial economy, and higher education have distinctive characteristics of the era of the knowledge economy.

The cultural industry has thus ushered in a huge opportunity. Big data optimizes the industrial value chain;

integrates communication subjects, communication channels, and audience resources in multiple dimensions to facilitate media integration; and integrates market information to improve the price mechanism and supply and demand mechanism of the cultural market and credit reporting mechanism. The term art design originated in Britain in the nineteenth century. At that time, the rise of the industrial revolution rapidly changed the original social structure of human society, making humans move from an agricultural and handicraft society to an industrial society, and a city-centered commodity economy developed vigorously. As people's needs for the spiritual and cultural level have also increased, art design has developed as a bridge between people, products, the environment, and society [1, 2]. Britain, with its strong economy as its pillar, has made great achievements. British art design has different styles in different historical periods, forming artistic styles such as decorativism, constructivism, Op technology, and post-modernism [3]. The cultural accumulation is formed by the aesthetic style deduced by art design, and then creative industries are connected to the industry, and, through the

assistance of science and technology, as well as the formation and use of intellectual property, a cultural creative industry is gradually formed. In the field of the art design, individual creativity is highly respected. Only designers with an innovative spirit can innovate ideas in the form of works and design unique works. Only with core art creation can there be culture and art [4]. At present, China's economic development and transformation depend on the development of cultural industry [5]. First, it can greatly promote the level of theoretical knowledge in China's cultural creativity and, more importantly, promote the development of cultural-related industries, so as to provide support for China's economic construction. Second, it is possible to refine the cultural industry from the basic connotation identification and differentiate the cultural industry from the outer edge. Such refinement and differentiation are extremely reasonable and advantageous for the development of our society. Third, more and more countries have discovered the important value of the cultural creative industry in modern society and raised it to the height of national strategy. The relationship between design art and development is studied.

Heritage resources provide deep historical reasons. Luciana Lazzeretti once analyzed the development of local cultural heritage resources and cultural and creative industries. On this basis, it is proposed to vigorously develop ceramic cultural and creative industries, cultivate a large-scale industrial agglomeration area, form an industrial chain, and realize the efficient transformation of heritage, as well as using cultural and creative industries as resources, ultimately enhancing cultural taste, and creating urban distinctive brands [6, 7]. David Wright used the modern creative cultural industry as a framework to conduct an in-depth analysis of the Fuzhou lacquerware industry. First, he combed the development history of Fuzhou lacquerware, outlined the problems facing the current lacquerware industry revitalization, and proposed that the core of future development might be from the viewpoint of lacquerware cultural industry transformation, recognized the importance of establishing a good image of Fuzhou lacquerware culture, and put forward rationalization suggestions from market analysis, product design, and market development [8]. Zhouqing Luo used the theory of culture, economics, and regional development to introduce the connotation of sports culture and creative industries [9]. Min Qu once constructed a policy evaluation system. The results show that Beijing's cultural and creative industry policy has played its role, and the implementation effect is good. However, from the perspective of the laws of industrial development, it was adjusted to achieve the decisive role of the market in resource allocation through legislation [10].

More and more countries have discovered the important value of the cultural creative industry in modern society and raised it to the height of national strategy. The research in this paper finds that they affect each other. As the starting point for research, the average growth rate of China's cultural and creative industries is as high as 26.08%, which is not only limited by the growth rate of traditional industries. More results show that, in 18 years, radio, television, and Internet information services, which are rapidly developing,

accounted for 27.9%, 21.8%, and 20.3%, while the advertising, exhibition, tourism, and leisure industries have also steadily increased, and they accounted for 9.6% and 7.1% of the total share.

2. Proposed Method

2.1. Related Theories of Cultural and Creative Industries

2.1.1. The Concept of Creative Industries. Creativity and creative industries have received unprecedented attention; whether it is the government or the enterprise or whether it is a business operator or a designer, the creative industry is a topic that everyone loves [11]. Creativity is the imagination and creativity of people, and the creative industry is the creativity and imagination of raw materials. Creative people like novelty. Not only does their creativity enrich their personal life, but at the same time they will turn their dreams, imaginations, and ideas into works of art. This will also enable enterprises to make profits and achieve great success. It can be seen that creativity has huge creative potential.

New economy, science and technology, and art and culture create wealth for society and provide extensive employment [12, 13]. The cultural creative industry is a developmental and diverse concept.

2.1.2. Essential Characteristics of Creative Industries. By the British Creative Industries Task Force: "industries that have their development [14]," the analysis of the creative industries is defined in the "China Creative Industry Development Report." Based on buying and selling creative products, "creative industry" is formed [15].

Reflecting Creativity. Innovation is the core connotation and essential characteristic of creative industries [16]. Innovation rejects imitation and repetition, emphasizing rich imagination, novel and unique feelings, and experiences. In the creative design of products, we pay attention to unique vision and creative thinking and form a unique concept in the form and content of the design. It is a new creation of traditional products or a recreation and promotion of traditional products. Being irreplaceable always reflects the originality of its core content value. The creativeness of creative industries also runs through many links such as production models, business approaches, sales methods, and media.

Embodying Culture. It covers strong "cultural" characteristics [17]. Lack of cultural activities vitality and the lack of pop culture cannot bring high cultural added value, nor can they create considerable economic benefits.

Reflecting the Scientific and Technological Nature. The creative industry is inseparable [18]. It has developed into a set of virtual technologies, which has greatly released the creative potential of human beings.

Reflecting Integration. The creative industry is separated from the design and development agencies that originally

belonged to various industries and formed an independent industry under the environment of rising consumer cultural demand, 2016. Therefore, the creative industry's permeability to the cultural industry is particularly prominent, and, in the creative design process, it can infiltrate culture, creativity, and services and grasp them comprehensively, reflecting a strong integration.

(5) *Reflecting the Characteristics of "Industry Chain."* "Creative Industries" are inseparable from the "industrialization," thereby creating more and higher economic value [19].

2.2. Purpose and Significance of Creative Industries

2.2.1. Improve China's Position in the Global Industry Chain. For a long time, we have relied on cheap labor to process raw materials and lacked core technologies with independent intellectual property rights, which has kept China at the bottom of the global industrial chain [20]. With the economic transformation and upgrading, we need to change the status quo of the industry and enhance our own industrial value. The creative industry mainly enhances value through the two engines of technological innovation and cultural creativity. Scientific and technological innovation can enhance the function and use value of products, while cultural creativity can add new concepts and spiritual values. Incorporating cultural connotation into product design and giving people a wealth of imagination and experience aroused the cultural identity of consumers and further opened up the market.

2.2.2. The Need for the Transformation of China's Economic Development Model. Creative industry is an inevitable product of the development of the country's economic and cultural construction and scientific and technological level to a certain stage. It does not refer to a certain type of industry. New industries had intellectual capital, cultural capital, and social capital as their operating methods [21]. The significance is not to reclassify the industrial content involved but to emphasize the new economy, technology, and culture. Industrial structure is a change in the way of thinking, an innovation in the economic development model, and a subversion of the traditional industrial development logic. The model shifts to an intensive development model, from a single output model to a knowledge and creative-intensive development model.

2.2.3. The Optimization and Upgrading of the Industrial Structure Require the Development of Creative Industries. Accelerating the pace of industrial structure upgrading and also enabling enterprises to obtain more business opportunities and markets have led to the continued prosperity of the entire economy [22]. Moreover, the development of creative industries has promoted the concept of nonmaterial elements to create value and promoted the transformation of the concept of socioeconomic resources from a simple material resource to a concept that attaches equal

importance to material and nonmaterial resources, thereby driving the adjustment of the industrial structure.

2.3. Essential Differences between Creative Industries and Traditional Industries. The creative industry is closely related to the traditional cultural industry. On the one hand, the creative industry originates from the traditional industry and is an extension of the traditional industry. The creation of any kind of creative activity is inseparable from the accumulation of human civilization but the recreation on the basis of the traditional wisdom-filled traditional culture. Without the traditional foundation, the creative industry will become a water without a source and a tree without a root. On the other hand, cultural and creative industries are higher than traditional cultural industries [23]. It no longer simply clings to the concepts and categories of traditional cultural industries in the past, and it is an emerging industrial form. This article mainly analyzes and compares creative industries and traditional industries. The specific differences are reflected in the following aspects.

2.3.1. From the Materiality Attribute of Industry. The creative industry, with its creative production concepts and the use of human wisdom, pays more attention to nonmaterial cultural industries, such as the ideology and cultural spirit of products. Creative industries are often called cultural and creative industries in the form of time structure or ideology [24]. The traditional industry is an individual simple, materialized production industry, which is a simple reproduction of a product. According to cultural industry itself [25], more emphasis on materiality and more space are provided [26]. The physical form of structure exists but is reflected in the intangible assets of intellectual property, which generally have strong dematerialization. This non-physical product makes product circulation break through the constraints of objective factors such as time and space, which not only widens the field of product circulation but also improves the profitability of the product [27].

2.3.2. From the Perspective of the Organizational Structure of the Industry. Industry in the traditional sense generally refers to similar enterprises organizing production in accordance with the general processes, lacking horizontal connections with each other, as well as industrial organization forms often reflecting the characteristics of vertical integration [28] and forming a new consumer market. The same or different industries converge and develop, and the industrial clusters that provide creative services to all industries have broken the boundaries of traditional industries in organizational form [29].

2.3.3. From the Value of the Industry. The creative industry organizes production processes through the distribution of industrial value chains, forming a concentric circle with creativity or intellectual property as the core and production and sales as the periphery [30]. From the perspective of the value of the industrial chain, creative design and marketing

services are at the highest end of the industrial value chain. Its resources are human wisdom, independent research and development capabilities, and independent innovation processes. It has its own brand and core technology as early as possible and gradually reaches high value-added, high growth, high output, and high employment, which are the four “high” characteristics [31].

2.3.4. From the Perspective of Industrial Product Orientation. Most of the products produced in traditional industries focus on the functional value or use value of the product to meet the material and physiological needs of consumers as the basic purpose. The creative industry production is people-oriented and demand-oriented to change the concept of products, especially the sense of cultural identity, to meet the spiritual and psychological needs of consumers to obtain the market and profits [32]. The change from product orientation reflects that the creative industry stimulates consumers’ purchase potential through the creative design of products, forms a new consumer market, improves social quality, and promotes sustained economic growth.

2.3.5. From the Technical Point of View of the Industry. It relies more on new technologies, such as animation, fashion, network, media, film, and television, while traditional industries are more a single technology processing. Through the development of high-tech industries, we can not only reduce the resource consumption of unit GNP. For example, in the traditional industrial value chain, the new value chain needs to be integrated through the network, but this integration of resources is an important driving force for China’s traditional physical industry. Another example is the construction of traditional industrial value chains, which requires the establishment of multiple forms of enterprise information platforms, technology platforms, and sales platforms; in the process of value chain adjustment and reconstruction, enterprises need to establish multichannel information collection mechanisms: information technology is used to extend and improve the scope of the enterprise’s internal value chain. Creative industries have higher technical requirements and can bring greater wealth to creative industries through science and technology.

3. Experiments

3.1. Data Source Selection and Data Processing. Considering the availability and consistency of the data, this article selects the culture. Some provinces have difficulty in obtaining data. Therefore, when conducting research and analysis, the provinces that have difficulty in obtaining data are eliminated. Since the main cultural and creative industries in China are clustered in China’s major large and medium cities and towns, and there are few rural areas and data are missing, the data of input and output indicators required for empirical analysis in this paper are replaced by urban data. The fixed asset investment in each subsystem of the cultural and creative industry in this article is derived from the 2014–2018 China Fixed Assets Investment

Yearbook. The number of people and total labor compensation in each subsystem of the cultural and creative industry are from 2014 to 2018 (China Labor Statistics Yearbook).

3.2. Research Methods. The main research methods are literature review method and case study method. Through the analysis of domestic and foreign literature on cultural and creative industries, the literature method is used to conduct research, advanced foreign experience is compared with China’s actual situation, and the real environment of the region is analyzed and researched, and then the cultural and creative industries are comprehensively studied.

Interdisciplinary Comprehensive Theoretical Research Method. The cultural and creative industry is a complex social practice activity involving many disciplines, such as anthropology, history of art concepts, communication, marketing, economics, psychology, and semiotics. Through comprehensive interdisciplinary research, we will find that some of the middle areas after the edges of disciplines are often the areas where the collision of thoughts is the most intense but where the truth blends together, because “innovation in thinking is often the result of avoiding border police and stepping into other territories.” These disciplines will provide valuable theoretical support. Creative industries are set from an artistic perspective but do not give up aesthetics, sociology, anthropology, psychology, and advertising perspectives of science and communication. There are multiple perspectives, multiple thoughts, and multiple research methods. It is difficult to unify methods and ideas and focus on a single topic study.

4. Discussion

4.1. Impact of Design Art on the Value-Added of Cultural and Creative Industries. Design itself is a blend of culture and reality and is the cultural and artistic expression of designers through realistic materials and tools. Comparing the growth rates of cultural and creative industries and GDP, the results are shown in Table 1 and Figure 1.

As can be seen from Table 1, it is not only limited by the growth of traditional industries. The speed is also electronic information industry, which is also an emerging industry. As shown in Figure 1, the scale of China’s cultural and creative industries in 2017 and 2018 was as high as 863.4 billion yuan and 10751 billion yuan.

4.2. Analysis of the Relationship between the Market Structure of Design Arts and Cultural and Creative Industries. Design art through the aesthetic appeal cleverly combines the actual use value with the aesthetic value and improves the cultural creative products from the design concept and then promotes the development of the entire industry, which has become an important breakthrough. With creative skills and talents, it can obtain high value-added wealth through marketing and development. Art design is based on creation and innovation and is an important expression of creative thinking. The cultural and creative industry is closely

TABLE 1: Comparison of growth rates of cultural and creative industries and GDP in 2014–2018.

Year	Growth rate of cultural and creative industries (%)	GDP growth rate (%)	Growth rate of electronic information industry (%)
2014	27.8	13.0	18.2
2015	24.4	9.6	14.6
2016	20.9	8.7	4.5
2017	32.8	10.1	25.2
2018	24.5	9.2	21.4

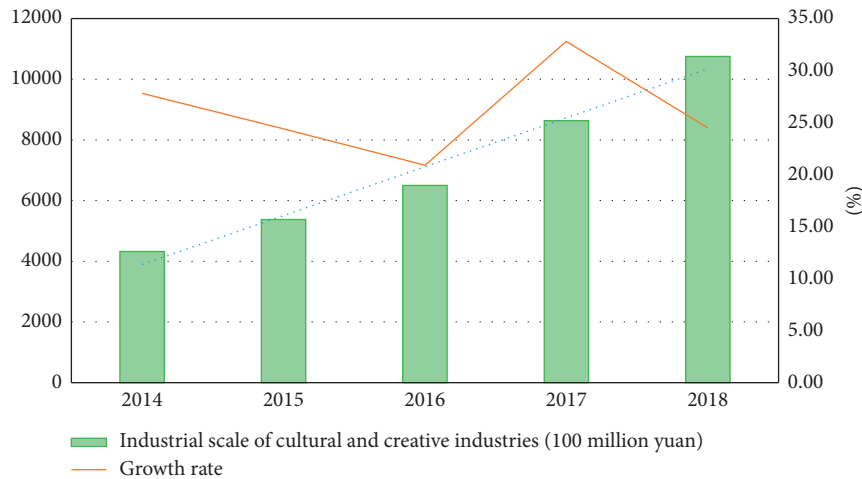


FIGURE 1: Comparing the growth rates of cultural and creative industries and GDP, as well as industrial scale and growth rate of China’s cultural and creative industries in 2013–2018. The scale of China’s cultural and creative industries in 2017 and 2018 was as high as 863.4 billion yuan and 10751 billion yuan.

connected with art design. From the design of cultural products, as well as brand packaging to the promotion of the company’s own image, it all involves art design creativity. High added value brought by art design to the product and the promotion of the optimization are keys for enterprises to improve economic efficiency and market competitiveness. As a component of the cultural and creative industry chain, art design plays an important role that cannot be ignored in its development. The cultural creative industry provides a broad application space for art design to go to the market and points out the direction of development of art design for large-scale industrialization. A comparative analysis of each subsector of the cultural and creative industries in the past 18 years is shown in Figure 2.

It can be seen from Figure 2 that, in 18 years, radio, television, and Internet information services were rapidly developing, accounting for 27.9%, 21.8%, and 20.3%, while the advertising, exhibition, tourism, and leisure industries have also steadily increased, and they accounted for 9.6% and 7.1% of the total share, which have a relatively small share, including cultural and arts, design services, and art transactions. Subindustries have developed rapidly.

4.3. Innovative Perspective of Researching Design Arts and Cultural Creative Industries. Art is also an innovative development based on reality. A new interpretation of the cultural industry through an innovative perspective has become a perfect meeting point for the combination of design art and cultural creative industries. The creative

product display after incorporating design art is shown in Figure 3.

As can be seen from Figure 3, the creative products after incorporating the design art have largely improved the overall visual comfort. In this creative product, not only the concept of design art but also the essence of our traditional culture is incorporated. In the field of art design, individual creativity is highly respected. Only designers with an innovative spirit can innovate ideas in the form of works and design unique works. Therefore, it can be said that art design is the upstream of the cultural creative industry. Only with core art creation can there be culture and art. A certain aesthetic appeal mainly conveyed by artistic creativity in design often deviates from the universal sensory image, and the aesthetic image it creates often becomes a unique form of existence because of its novelty. This unique aesthetic image, through its own uniqueness, directly and profoundly affects the hearts of the audience and produces a generally strong aesthetic identity and aesthetic shock.

4.4. Impact of the Vigorous Development of Cultural and Creative Industries on Design Art. Figure 4 shows the paper-cutting art of cultural and creative products in China, and Figure 5 shows the creative cultural crafts.

From Figures 4 and 5, we can see that the art of design and the culture and entrepreneurship industry are mutually reinforcing. They promote and influence each other. The concept of cultural creativity is integrated into the art of design, making art design more culturally attractive, and

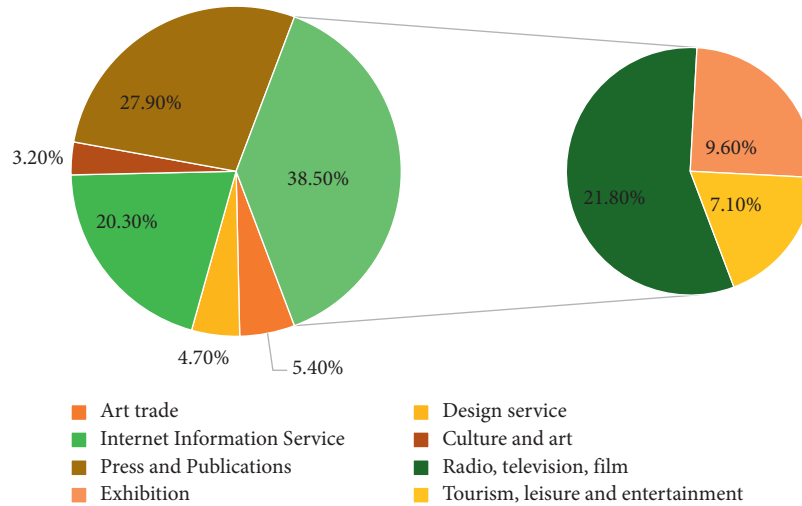


FIGURE 2: Market structure of China's cultural and creative industries in 2018. In 18 years, radio, television, and Internet information services were rapidly developing.



FIGURE 3: Creative products integrated with design art concept, from which the creative products after incorporating the design art have largely improved the overall visual comfort.



FIGURE 5: Cultural and creative crafts.



FIGURE 4: Paper-cutting art of cultural and creative products in China.

cultural creativity and the art of design make products more aesthetic. Design art is the perfect combination of art and reality to make art from the sacred temple to universal significance. Integrating innovative and creative cultural ideas into practical needs and becoming an exchangeable item can largely provide opportunities for the development

of design art, provide fertile soil for creation, and provide a creative market environment for design art. Thirdly, it has also brought unavoidable adverse effects to design art. Design art needs to maintain its relative independence and has its own development trend in social and economic development. However, the overexpanded cultural and creative industry will interfere with the healthy and independent development of design art. Economically, market regulation will cause design art to deviate from elegance, which is not conducive to the development of design art. On the social side, too rich and chaotic cultural tributaries will hinder the development of design art.

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5. Conclusions

High-level innovative talents are the key. The goal of big data technology in the cultural industry is its application. Launching a special project of cultural industry big data, creating a cultural industry experimental park, and giving play to its demonstration effect will help promote the application and optimization of big data. In addition, the research in this article finds that integrating design and artistic concepts into cultural and creative products can make products more visually appealing, while integrating cultural and creative concepts into design and art makes products more culturally connotative. In the future, more works should focus on how to integrate the cultural and creative concepts into products for Industry 5.0. Furthermore, more data and analysis should also be provided to support this field. Meanwhile, how to combine these with artificial intelligence and intelligent industry is also a challenge, which needs more attentions and needs to be developed in the future.

Data Availability

The data used to support the findings of this study are currently under embargo, while the research findings are commercialized. Requests for data, 6/12 months after publication of this article, will be considered by the corresponding author.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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